

NAVY MEDICINE

November-December 1987



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NAVY MEDICINE

Vol. 78, No. 6
November-December 1987

From the Surgeon General

1 Outreach

From the Commander

2 Information Flow

Department Rounds

4 "Bug Busting" in the Philippines *PHC C. King, USN*

Bethesda Consultant's Corner

7 Oral Care for Head and Neck Cancer Patients Undergoing Radiation Therapy *K.H. Baker, M.S.N., R.N.*

Feature

10 The War's Most Incredible Document *V. Ullman*

Education and Training

14 CAMIS: Computer Assisted Medical Interactive-video System *F. Toth, Ph.D.* *P.M. Strub, M.A.*

Professional

24 Chlamydial Urethritis: The Most Frequent Form of Nongonococcal Urethritis *CAPT A.D. Heggie, MC, USNR*

Notes and Announcements

22 Fighting Fit

26 Oldest Navy Nurse Dies

27 INDEX Vol. 78, Nos. 1-6, January-December 1987

COVER: A student uses the Computer Assisted Medical Interactive-video System (CAMIS) in the learning resource center, Naval Hospital Corps School, Great Lakes, IL. The marriage of videodisc and micro-computer technologies has given medical education a whole new dimension. Story on page 14. Photo by HM1 Bernt Johnson, Biomedical Communications Center, NHCS, Great Lakes, IL.

Outreach

Just as it has been properly said that "no man is an island" so too is it true that no successful large institution these days can be insular or confined in its thinking. Navy medicine has many important areas in which contact with agencies and individuals outside of our own structure is essential to our effective functioning. Just as we must reach outside of our own clinical and research base to find new procedures, drugs, and regimens to ensure our medical and surgical currency, so too must we reach out in nonclinical areas which are also vitally important to our effectiveness as a military medical organization.

Civilian medicine has made dramatic strides in nonclinical areas of endeavor. Hospital administration, from financial management to marketing, has been a burgeoning area of rapid progress during the past 5-10 years. From computerization to patient contact management, they have set standards which we must adopt, and adapt, in order to remain competitive.

We owe it to ourselves, our patients, and the Navy to ensure that we are looking constantly at the state of the art in all facets of medicine and bringing them into our systems whenever and wherever we can in order to improve service, conserve assets, and make the very best use of our people. We must make the modest investments in seminars, periodicals, and other forms of communication which bring these forms of information to us on a regular basis in this exploding era of changing data.

At the same time, as part of the United States Navy and Marine Corps, we must reach out to our line counterparts. There is an important information need which we must satisfy in order to complete the complex job which we do for the Navy/Marine Corps team. No small part of that job

is helping our line colleagues to understand the role and capabilities of Navy medicine in the fast-changing operational environment of the 1980's. We are now a medical organization of fleet hospitals and massive hospital ships, becoming better prepared each day to handle the contingency role for which the line depends upon us.

We must bring to our line a full and comprehensive understanding of what we can do for them, both in peacetime and when the chips are down in war. It is equally important that we share with them the shortcomings in resources and personnel which keep us, either now or in the future, from accomplishing the missions which the Navy and Marine Corps have set both for themselves and for us. If we do not make these shortcomings *clearly* known, and what it will take to fix them, we are letting down an organization which needs and depends upon us, and which must have a fully ready, capable medical force whenever they turn to us.

Our last, but very important area of outreach is to our patients and beneficiaries, who must also know both that we are their strongest advocate for medical care and that caring is as much a part of our role as care itself. They, too, must be fully informed, both of our capabilities and our limitations, and with regard to the latter, what we are doing about correcting our deficiencies. We owe this to our patients in the same manner as we owe it to the operational line.

Great strengths come to us from the knowledge, assurance, and information which outreach brings in. At the same time, we must provide these same commodities to those with whom we deal in order that all may know, all may understand, and all may eventually benefit.

VADM James A. Zimble, MC

Information Flow

Information is the fuel of any successful management effort these days. Indeed, people are talking about the information revolution and the fact that we are turning into an information society. All these things are true except for the last. We *have* turned into an information society and there is no turning back.

Information channels vary so very widely, from high-speed data transmission circuits to the human need to receive vital information about diagnoses, treatment, and even availability of care itself. No one can be successful at managing anything these days unless they are prepared both to acquire and dispense information to those who need it in a complete and clearly understood manner. Not only must we have a clinical state of the art in our practice in this zero-defects medical environment which the 1980's have brought to us, but we must also meet informational needs of our own people within the Medical Department, our patients and beneficiaries, and the line community upon which we depend for resources and personnel.

Each of the types of information I have indicated above is different in its essential nature, how it is packaged, who must get it, how quickly, and what effect it will have on the recipient.

No one has said that information flow to these highly diverse audiences is easy or uncomplicated. It is neither, but it is certainly necessary. Whether it is regular meetings with hospital staff, briefings for line commanders in our local areas, or personal presentations to beneficiary groups about health care availability, we must ensure that we are taking every opportunity to have the facts known to those

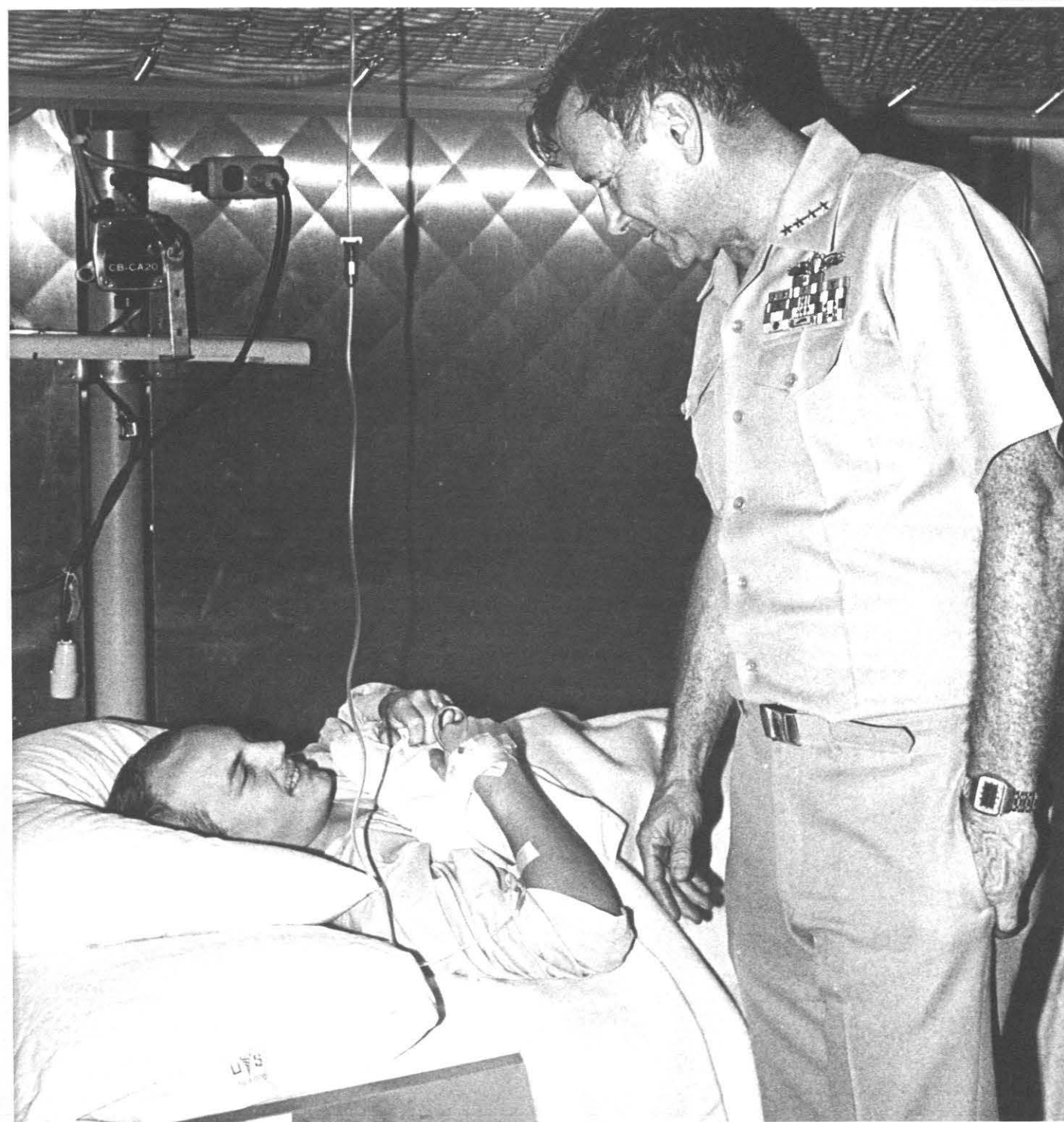
who must or should have this information in order to act or understand.

Too often, perhaps, we assume that our beneficiaries and our line contacts understand the status and resource shortcomings of Navy medicine as well as we do who work with these things every day. It is a dangerous assumption to think that everyone knows what we know on these issues, and a necessary effort to ensure that they do know the way things are and how they ought to be.

At the same time, relating blocks of information on causally-bound issues is similarly important. People understand long waiting times for care better when they understand that resource shortages rather than inefficiency or lack of caring have brought these about. What we are trying to do as health care finders is vitally important to those who cannot be accommodated in our military treatment facilities now. Our efforts to improve the utilization of our facilities by contract hires are similarly vitally important to many of our beneficiaries who will receive improved service through this means. The information will not find its way to people. We must get it there, be we hospital commander, health benefits advisor, ward nurse, or corpsman, each in our own way and within the responsibilities of our own tasks.

Information is a commodity of which we are all consumers. In our continuing effort to provide the best service to every beneficiary of Navy and Marine Corps medicine, let us make certain that we are also competent and thorough information producers.

RADM Joseph S. Cassells, MC



ADM David Jeremiah visits with BM3 Geoff Metcalfe in the sickbay of USS Missouri (BB-63). Jeremiah, Commander in Chief, Pacific Fleet, recently toured the battleship in the North Arabian Sea.

"Bug Busting" in the Philippines

Trekking through the dense Philippine jungle is dangerous enough during daylight hours when the tropical sun is hidden by a triple canopy of foliage. Imagine trying to climb steep, rain-soaked jungle ravines in the pitch-black of night, hoping you don't lose your footing and fall into a den of deadly cobras.

This is the working environment of LT Robert Brian Gay, a Navy medical entomologist and his team of mosquito busters as they track down the breeding areas of the elusive malaria-carrying mosquito, *Anopheles flavirostris*.

"Everything comes out at night in the jungle," LT Gay said, "including mosquitoes. The Anopheline breeds in the dense foliage and free-flowing streams. It's active from 8 p.m. to 5 a.m.; so with backpack sprayers and ultralow-volume fans we set out through the Marine jungle training areas twice a month.

"Each of us on the team gets about 2 hours of sleep on a bed of bamboo. The rest of the night we're spraying,"

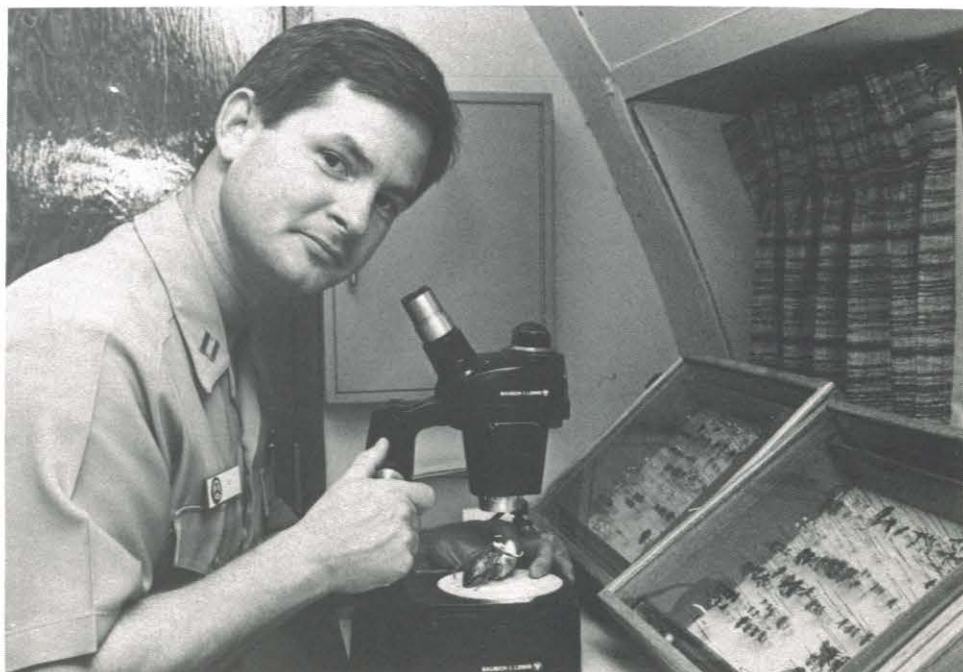
Gay said. "One night I stepped on what I thought was a tree log. It squealed, jumped up and took off, scaring the daylights out of me."

The 34-year-old lieutenant is head of the Naval Hospital's Entomology Branch of the Preventive Medicine Unit at the 7th Fleet's largest support facility in the Pacific.

"As one of 36 medical entomologists in the Navy, I head a team of three preventive medicine techs and two Fil-

ipino biological technicians. Our job is to keep the Department of Defense personnel stationed here and visiting fleet sailors and marines free from diseases vectored by mosquitoes and other insects," Gay said.

"In the Philippines, there are hundreds of species of mosquitoes plus other exotic insects and spiders that have the potential of causing big problems for us. That's why, by being here, we feel like we're on the cutting edge in



LT Gay studies an insect specimen.



It is the little buggers that worry LT Gay, like the malaria-carrying Anopheline mosquito held in a pair of tweezers (bottom). In his hand he holds two of the more exotic but harmless beetles he found on base.



the world of military entomology," he continued.

Petty Officer Second Class Steve Krysiak has been on the entomology team for 3 years. "In 1985 there were 86 marines that came down with malaria they picked up at the training areas here. We don't want that to happen again," he said. "From January to June 1986 there were 59 reported cases, and so far this year we have four reported cases."

"For those malaria cases treated at the Naval Hospital, it requires 2 weeks of rack time (bed rest) and the administration of the antimalarial drug Fansidar and quinine," Gay said.

"We've designed an integrated mosquito control program strategy. We conduct research studies and jungle

surveys all-year-round," Filipino biotech Lory Panganiban pointed out. He has been with the entomology team for 17 years.

"Our busiest time is May and November, just before and after the rainy season, when the streams are slow. Fortunately, we have a lot of volunteers, both American and Filipino," he went on.

The team's job also takes them into the local community and villages adjacent to the naval facility and training areas. There they conduct medical civic action projects and take frequent blood smears for malaria. Gay dispenses drugs through the local health officials for those people whose blood tests positive for the malaria parasite. If mosquito-breeding areas of Anoph-

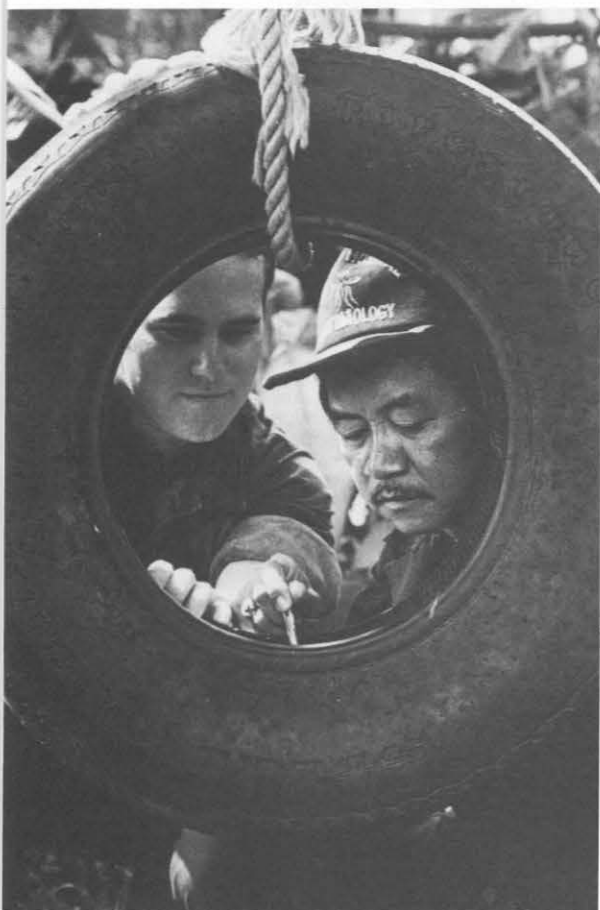
eles are found, larvaciding and chemical spraying are done.

"In May 1985 the population in the barrio of Mabayo, on the perimeter of the base, was found to be 25 percent positive for malaria. After treatment and monthly spraying the incident rate dropped to less than one percent in October 1986," Gay said.

Gay and his team work closely with the Naval Medical Research Unit in Manila. The unit is conducting research at a Negrito village on the naval reservation. Manny Vinluan, a Filipino bio-tech has spent a lot of time with the short, wiry jungle inhabitants who provide perimeter security to the base. "We're looking into the possibility of malaria cases that are potentially resistant to local antimalaria medi-



A Filipino holds his prize-fighting rooster as he has his blood taken for a malaria smear. The entomology team at the Subic naval facility makes frequent visits to local barrios and villages around the base testing the residents for the disease.



cine," Vinluan said.

The team also keeps a small menagerie of Philippine carabao, pigs, and mosquito-eating fish.

HM Ed Boles has spent a few sleepless nights collecting mosquitoes using a young female carabao as bait. "We call it a CBT, or carabao baiting trap," Boles explained. "Mosquitoes feed on the animal, then rest on the net we have over it. We collect the mosquitoes at 10 p.m. and 2 and 5 a.m. Later we take them back to the lab for identification."

Blood samples of pigs kept at the base riding stables are collected periodically to determine the presence of the Japanese B encephalitis virus. This is another vector-borne disease marked by headaches, fever, tremors, and convulsions.

"Our vector control program is going along smoothly," Gay said. "We know what we have to do, and I've finally convinced those who control the purse strings to allocate more money for the program. So far we've spent \$61,000 this year. I would like to see the budget increased to \$100,000," he said.

Entomologists like Gay agree that the best way to protect the troops from vector-borne diseases would be inoculation. The Navy and other government agencies are working together on a vaccine for malaria.

Until a breakthrough comes LT Gay and his entomology "bug busters" will be trekking through the jungle controlling Subic's mosquito population.

—Story and photos by PHC Chet King, Seventh Fleet Public Affairs, Subic Bay, R.P.

HM Boles (left) and entomology bio-tech Lory Panganiban check an old tire used as a swing, for standing water and mosquito larva.

Oral Care for Head and Neck Cancer Patients Undergoing Radiation Therapy

Karen H. Baker, M.S.N., R.N.

Radiation therapy (RT) is routinely employed in the treatment of head and neck cancer patients. Approximately 40,000 new cases of head and neck cancer are diagnosed each year (Million, 1984). The majority of these are squamous cell carcinoma. A total dosage of 6,000 rads or more is used as treatment. At this dosage all the complications caused by RT treatments can be encountered. Some of the side effects are relatively minor, others quite serious (Helman, 1979). These complications are: mucositis, dysgeusia, xerostomia, candidiasis, trismus, radiation caries, dysphagia, and osteoradionecrosis (Table 1).

There is general agreement in the nursing, dental, and medical literature that oral hygiene measures are of vital importance in preventing infections, promoting healing of intraoral suture lines and preventing further damage to oral mucosa. It is also of significant value in improving feeling of well-being, improving appetite, and preventing radiation-induced caries.

The need for an oral care program for head and neck cancer patients in our facility is evident. The reasons oral care is not provided routinely are both

obvious and obscure. Although all caregivers are aware of the value of oral care, it is the most overlooked aspect of nursing care. This omission may be related to the caregiver's lack of preparation in relating oral assessment to clinical pathology (Schweiger, 1981), lack of time, minimization of the importance, not knowing how to give appropriate care, or the fear and repulsion felt by many caregivers toward the surgical and anatomic changes in these patients.

The purpose of this article is to familiarize caregivers with the side effects of radiation on head and neck cancer patients, establish a plan for management of these side effects, establish an oral care protocol that is easy and effective, and to share the program Navywide so that patients and staff in other Navy health care facilities may benefit.

Daeffler (1981) published a three-part article that examined oral hygiene measures for persons receiving chemotherapy. Based on her findings, there are four goals in an oral hygiene program:

- Keep the oral mucosa clean, moist, soft, and intact.

- Remove debris and plaque from teeth without damaging the mucosa.
- Alleviate pain and discomfort.
- Keep the lips clean, moist, soft, and intact.

Using Daeffler's Systematic Protocol for Oral Care (1980) for persons receiving chemotherapy, an oral care protocol for head and neck patients receiving RT was established (Table 2).

Many patients who receive RT are treated on an outpatient basis and will be providing their own oral care at home. The plan must be simple, inexpensive, and easily performed as part of the patient's daily routine. Including the patient as an active participant in his own care helps to ensure compliance. Patients who are hospitalized may be able to assume all their own care with little nursing intervention. More debilitated patients may need all their care performed for them. The patient will feel and look better, and withstand the arduous radiation treatments with fewer negative side effects.

Ms. Baker is a clinical specialist in head and neck surgery in the Department of Otolaryngology, Naval Hospital, Bethesda, MD 20814.

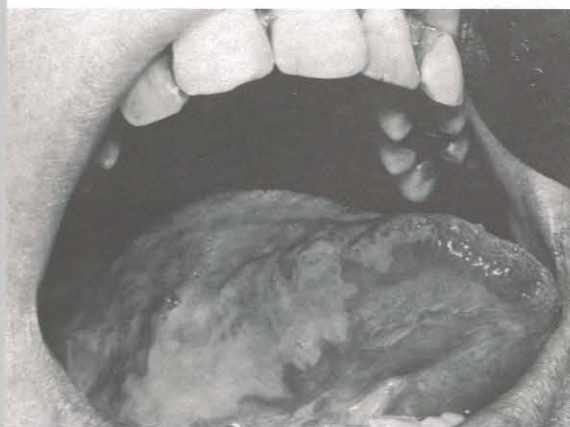


Figure 1. Mucosites of the tongue

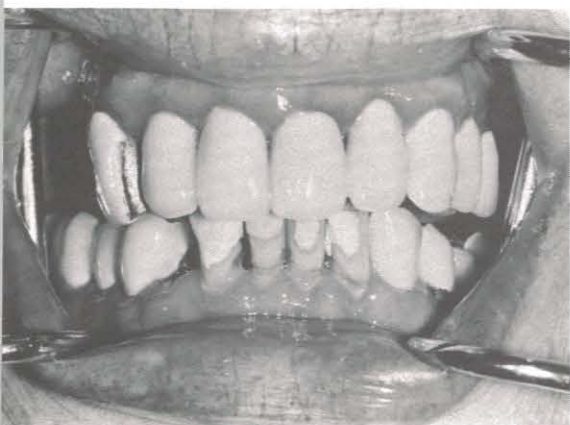


Figure 2. Radiation caries

TABLE 1

<i>Radiation Side Effect</i>	<i>Clinical Manifestations</i>
Mucositis: Soft tissue inflammation of the oral cavity (Figure 1).	Progressively worsens during RT. Appears during the first 2-5 weeks. Mucosa may be red, swollen, and ulcerated. Symptoms resolve 2-3 weeks after cessation of RT.
Dysgeusia: Altered taste.	Increases rapidly as absorbed dose approaches 6,000 rads. Usually precedes mucositis. Some resolution may occur.
Xerostomia: Changes in saliva consistency and reduced flow causing oral discomfort.	Causes difficulty with chewing and swallowing. May be noted by the third week of therapy. Saliva becomes thick and ropery, loses its buffering and antimicrobial action. pH of saliva drops from 7 to 5.5 or lower. May resolve 6-12 months after treatment.
Candidiasis: Overgrowth of <i>Candida albicans</i> , normal flora of the oral cavity.	Forms white elevated patches that resembles milk curds. May develop in any area of the mouth. This infection must be treated medically.
Trismus: Difficulty opening the mouth.	Motor disturbance of the trigeminal nerve resulting in difficulty opening the mouth. Generally develops 3-6 months after RT is completed.
Radiation Caries: Extensive and rapid decay of teeth (Figure 2).	Results from changes in salivary pH and flow. Treatment is scrupulous dental and oral care.
Dysphagia: Difficulty swallowing.	May be secondary to surgery, xerostomia, and/or mucositis.
Osteoradionecrosis: Radiation-induced fibrosis and avascularity of bone (Figure 3).	Occurs most commonly in the mandible. Best treatment is prevention.

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TABLE 2

Oral Care Protocol for Patients Receiving RT

1. For all head and neck patients receiving RT:
 - Interview for usual oral hygiene habits and dental history.
 - Dental consult for restorations and extractions if needed.
 - Reinforce need for meticulous oral care during and after treatment.
 Stress the importance of active participation by the patient.
 - No commercial mouthwashes, no lemon-glycerine swabs.
 - Objective and subjective assessment twice a day.
2. For patients without signs of mucositis:
 - All of #1.
 - Brush teeth with a soft toothbrush or toothette, floss gently after meals and at bedtime.
 - Petroleum jelly to lips as needed.
3. For patients with mild mucositis:
 - All of #1.
 - If gums are too sensitive to brush and floss, a toothette or gauze pad wrapped around the finger can be used.
 - Prepare a solution of hydrogen peroxide and saline (1:1 or 1:2 if too effervescent), use this to soak the toothette or gauze. Swish and spit or wipe the mouth out being very careful to get all debris and food particles. Do this every 4 hours.
 - Alkaline mouthwash (sodium bicarbonate and saline), swish and spit as needed. Do this every 4 hours.
 - Medicated mouth rinse as ordered by the physician (Table 3).
 - Artificial saliva as needed, obtained from your pharmacy.
4. For patients with severe mucositis:
 - All of #1.
 - All of #2, frequency should be every 2 hours.
 - Culture of mouth.
 - Bland, easily chewed and swallowed diet, no alcohol, no hot or spicy foods, a feeding tube or parenteral feedings may be required to maintain nutritional status.
 - Topical anesthetics (xylocaine jelly and water painted on sore spots 20 minutes before eating and as needed).
 - Analgesics.
 - Antibiotics.
 - Artificial saliva every 2 hours.
 - Encourage hydration, closely monitor nutritional status.

TABLE 3

Benadryl Elixir
 Distilled Water
 Hydrocortisone Powder
 Mycostatin Oral Suspension
 Mylanta II
 Nystatin Suspension
 Tetracycline Suspension
Consult your hospital pharmacist for required doses.

Photos by CDR Walton Rathbun, DC

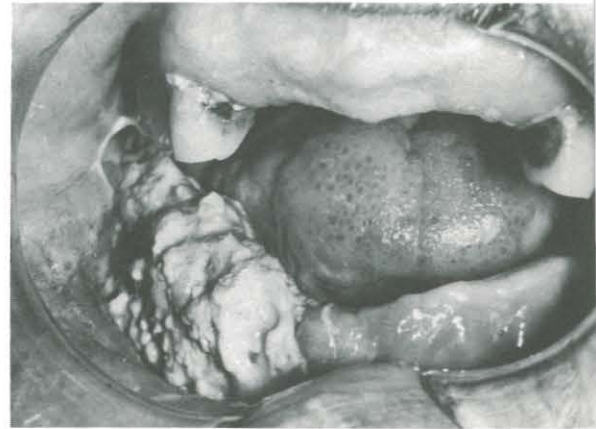


Figure 3. Osteoradionecrosis

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The War's Most Incredible Document

Victor Ullman

In past issues of Navy Medicine we have related the experiences of Navy medical personnel as POW's in the Philippines during World War II. The articles were based on diaries, logs, and other documents recovered from Bilibid when American troops liberated the pitiful survivors of that infamous Japanese prison on 5 Feb 1945.

Once the war ended, many of the documents dribbled back to Washington, some to be used for verifying the status of missing servicemen, others to form the basis for prosecuting suspected Japanese war criminals. The final repository for much of the material was the Bureau of Medicine and Surgery (BUMED).

A recent inventory turned up what in 1946 was called "The War's Most Incredible Document," the journal of PhM1c Robert W. Kentner. When war broke out in the Philippines in December 1941, Kentner was assigned to the Canacao Naval Hospital in Manila. With Japanese occupation of that city on 2 Jan 1942, Kentner, Canacao's medical personnel, and their patients became POW's.

Throughout 3 years of captivity Kentner kept a secret journal. Remarkably accurate, it contained death and burial records, dates of arrival and departure of prisoner drafts, prison census figures, rosters of personnel on duty, and floorplans and drawings of the Bilibid prison compound. Upon his repatriation in April 1945, Kentner personally delivered the journal to the Hospital Corps Archives Unit at BUMED.

"The War's Most Incredible Document," first appeared in the 9 Feb 1946 Liberty magazine.

Even on his honeymoon Pharmacist Robert W. Kentner, U.S.N., was not allowed to forget a long procession of his shipmates whose obituaries he had written in shipshape Navy fashion in one of the most incredible documents of the war.

Bob Kentner and his wife, Maureen, both of Buffalo, New York, were having lunch at their Asbury Park, New Jersey, hotel one day last June when a long-distance call from Chicago came for Kentner.

"Please forgive me, but I had to call you," a woman's voice said. "I begged your mother to tell me your whereabouts. She said you would understand." She stifled a sob. "My brother was in Bilibid Prison with you, and the Navy told me you kept a secret diary and—I must know something about my brother."

She mentioned a name that took Kentner back to the Philippines. It was the morning of October 11, 1944, when Kentner said good-by to Arthur and watched him, with nearly 1,800 other prisoners, straggle out of the Bilibid gates for the death ride to Japan.

"Please, Mr. Kentner," the woman pleaded. "My mother is dying. Just a little encouragement might save her. Can you give me any hope?"

This was four months before the trickle of information began from the survivors of Jap prison camps. Kentner himself had been out of a naval hospital just six weeks after recovering from the privations of three years and two months of imprisonment.

The call upset him. "What could I tell her?" he asked his wife. "My log shows that Art was one of ninety-one

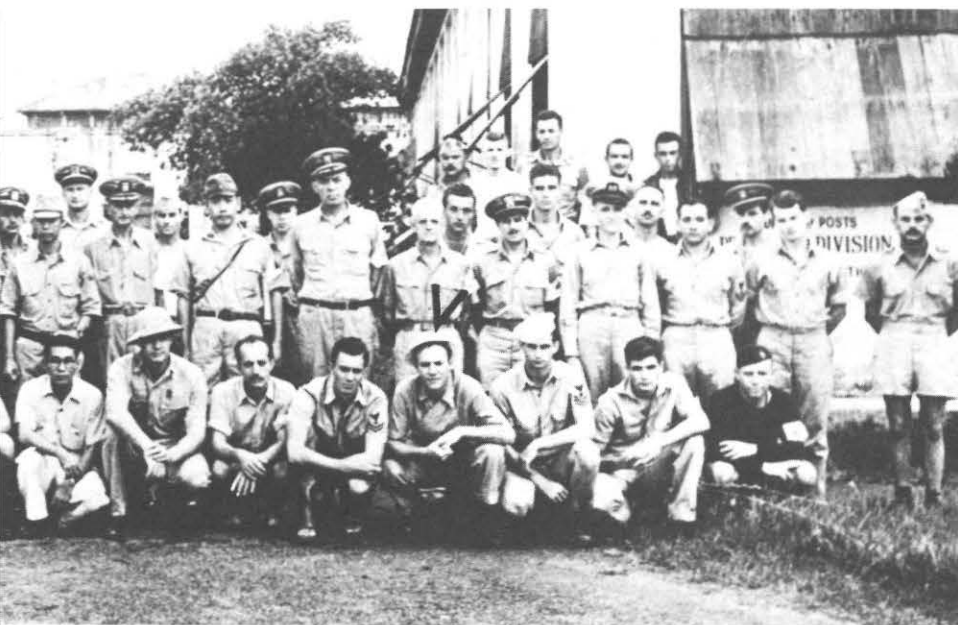


pharmacists' mates in a draft of 1,784 men that boarded a Jap freighter in Manila Harbor on that October morning. Two days later the ship was sunk in Subic Bay and there were five survivors. None of them were pharmacist's mates."

Through two naval hospitals, on his honeymoon, and now daily at his Navy duties, Pharmacist Kentner has not been allowed to forget Bilibid Prison. He is besieged by telephone, letter, and personal visits. He is begged for some detail from his "secret diary," anything to provide a glimmer of hope for survival of their loved ones taken prisoner by the Japs so long ago.

Recently, however, with more and more personnel records in the War Department and the Navy Department changed from MISSING IN ACTION to KILLED IN ACTION, relatives want to know how their boys looked before they died. Or did they give Kentner a message before they left for Japan and death? One girl asked, "Did he ever mention my name?"

Kentner tries to remember each name and face out of the grim three years, and when he cannot offer a shred of solace, is as unhappy as his visitors. He tends to disregard the fact that nearly every county of every state has at least one family which has been helped by one of the most amazing documents of the war—an undramatic



NAVMECOM Archives

Robert Kentner (arrow) appears in this Japanese propaganda photo taken in Bilibid, August 1942.

monument to a certain kind of courage.

In the armed forces this document has come to be known as "Kentner's Log." Transcribed from the scraps of stolen Japanese paper on which it was typed, the journal fills more than 200 pages of single-spaced typing. It is no thrilling epic of the war or gruesome story of imprisonment. There are no adjectives in it beyond descriptive qualifications of fact. Terse and purposeful, this piece of writing took three years and two months to complete, and it was written under the eyes of Japanese guards, yet without their knowledge.

Kentner's Log contains nothing but names, dates, numbers, and events with such consecutive entries as these:

"10-23-42: 78 men arrived from Cabanatuan, P.I. this date. HARBIN, Earl Charles, ChMachM USN, Ser. No. 271-90-28, died at 2245 this date. Cause of death: intraspinal injury (war injury). Buried in hospital plot, row 3, grave 17. Lt. L. W. King USA reported to this hospital this date from Cabanatuan for the purpose of experimental work in the propagation of yeast.

"10-25-42: Four gallons of yeast prepared and distributed to patients suffering from vitamin B deficiencies.

"10-27-42: SADLER, Edmund F., Pfc, USA, ASN, 19020690, died at 0805 this date. Cause of death: malnu-

trition. Buried in hospital plot, row 3, grave 18. . . ."

In a number of ways these entries assisted the thousands of families whose loved ones are listed. They derived some solace from the details of the death and relief from the continuing torture of the words: MISSING IN ACTION.

In a more concrete way, families were aided financially by these factual entries. Both the War and Navy Departments accepted the identifications and the fact of death as official for all listed in Kentner's Log. The families, therefore, were able to obtain the back pay, benefits, insurance and pensions, which could not be paid legally until death was established. The entries also helped many a wife and mother to accept the fact of death. Such as the woman in New York who wrote:

"Can you tell me only if my husband was alive on November 20, 1943? If he was alive on that day it will make me very happy because it was our anniversary and I told our little boy that daddy was thinking of us. We both prayed for him."

Kentner was able to inform the wife that on November 20, 1943, her husband was in the isolation ward and that the day was one of the greatest in the prison lives of all the emaciated men because the first substantial sup-

plies of Red Cross relief food were distributed. Her husband received a forty-seven-pound food package and the entire camp was filled with a holiday spirit as the men ate their fill for the first time in almost two years.

Since Bilibid was designated by the Japs as the major prisoner-of-war hospital in the Philippines, Kentner's careful entry of admissions from the other prison camps, from Japan-bound drafts, and from the dread work gangs constitutes an irrefutable record of conditions at these localities for the Americans. Day after day the log is filled with a record of wholesale admissions of patients from the work camps at Los Pinos, at Pasay, at Palawan, and from the road gangs in Tayabas. Shortly after these admissions were recorded, Kentner always was forced to add to his records of death. Some of the prisoners were delivered dead and in sealed caskets.

Kentner's tenacity in keeping his log night after night for three years two months, with the risk of detection constant, represents a special type of courage. That is a long time to walk under the sword. But Kentner explains it simply:

"I was scared all the time, but I got all the breaks. I did my job, but what's so unusual about that? Every hospital corpsman in that prison did his job. I was assigned to the personnel office to work for Cliff Condon [Pharmacist Clifford K. Condon, U.S.N., of Vallejo, California]. That was on May 30, 1942. Cliff told me the Americans wouldn't be back in P.I. for two years. I thought he was crazy, but he said we were a hospital in the U.S. Navy and we had to follow orders as we last knew them. One of these orders was that every naval hospital keeps a record of its work. It was his idea, his orders. I did it. That's what I was trained to do."

When Condon was shipped off on a Japan draft, to die in a prison camp on Kyushu on June 2, 1945, Kentner car-

ried on. He knew his punishment, if caught by the Japs, would be nothing less than a long prison term and he might be executed.

"You get used to the danger," he says. "I used to make my notes in my own shorthand and then type them out at night. You could hear the guards coming, for they all wore metal cleats on their shoes. I'd switch an official Jap report into the typewriter and wait for them to go by. Then I'd start the typing again. If the Japs hadn't been so stupid, I would never have been able to keep the log. Even so, I was scared all the time until they caught me in April 1944."

From that date until liberation in February, 1945, Kentner kept his log under Japanese protection. It happened this way:

Kentner was typing in the personnel office late one night, when suddenly a voice boomed at him from the barred window.

There was a snarl of "*Kuda*," meaning in Japanese "You no-good louse." Kentner recognized the voice as belonging to "Captain Bligh," the name given a sergeant of the guard because he was rough and totally *Kuda*. The Jap had sneaked up to peer into the paneless window.

"I realized he had to go around to the front of the building to get at me," Kentner says, "so I ripped the page of the log out of my typewriter and switched in the phony report. Then I noticed the report was dated about six months ago because I hadn't kept it up to date. But it was too late to do anything."

Captain Bligh stormed in, ripped the sheet out, and took Kentner to the guard office.

"Luckily Sato was noncom of the day. He could talk a little English but couldn't read much. He was pretty decent if you oiled him," Kentner says.

"Captain Bligh gave him a long story in Jap, then shoved the report in his face. I thought I was through. But I began to oil Sato. I explained that Lieutenant Nogi, the hospital director for the Japs, wanted certain reports by 8 A.M., and that meant working at

night. While I talked, Sato stared at the report. Then he interrupted me.

"This is a serious violation," he said, which made me certain I was in the soup. 'I do not know what punishment will be given. Light bulbs must be conserved. You have used them at night without permission.'

"It seems Captain Bligh had accused me of burning the lights, not typing at night. They sort of expected me to type, since I worked in the personnel office. Sato handed back the report. I staggered off and flushed it down a toilet. Next day I was authorized to burn lights at night, and to keep the guards from disturbing me the Japs also gave me a white arm band which said 'Office Man.' After that, it was a cinch."

The dangers were further eased in July of 1944 when Kentner was named by Commander Thomas H. Hayes, Medical Corps, U.S.N., then commanding officer of the hospital, as interpreter and liaison with the Japs to relieve Pharmacist Edward F. Haase, U.S.N., of Philadelphia, whose proficiency in the Japanese language almost caused his death.

"I knew some conversational Japanese and could get along with the guards, but Haase really knew the language. He was so good they sent him along with a draft of prisoners for Japan.

"When Haase left, we lost one of the strongest protections we had against the unpredictable Japs. It's hard to say how many lives were saved by the way he worked the Japs, but it was plenty. When I took over his job the responsibility scared me."

Kentner's Log records on August 2, 1943, that Haase, with Radio Electrician Earl G. Schweizer, U.S.N., and Chief Pharmacist's Mate Abel O. Gomes, U.S.N., were commended by Major General Xitiro Morimoto, commanding general of the Japanese military prison camps in the Philippines, for their work.

The task assumed by these men required complete disassociation with themselves. They were forced to swallow everything to benefit the prison-

ers. This they did at a personal cost that cannot be estimated. Kentner was forced to assume the same sacrifices.

His new duties allowed him to expand his log, since he now had all of the administrative reports and communications between the Japs and the Americans at his fingertips.

All of these records were stuffed in a storage space above a noisome toilet outside the personnel office. The Japs never pried into it. When the Yanks took Bilibid on February 5, 1945, Manila was in flames and the prison was threatened. Kentner found an old Filipino Army sack and stuffed it full of his records. He carted this sack across the Pacific and delivered it to the Bureau of Medicine and Surgery on April 21, 1945.

Commander (now Captain) Lea Bennett Sartin, Medical Corps, U.S.N., who had been commanding officer of the Bilibid Prison hospital for the first two years of its existence, was as amazed at Kentner's Log as any of the Navy men who examined it. Before he was imprisoned by the Japs at Cabanatuan, he had been in daily contact with Kentner, but had had no knowledge of the existence of the log.

"If I had told Dr. Sartin," Kentner explained, "he would have run the risk of terrible punishment. If I'd been caught he would never have lied about the log. He's not that kind of man. He would have admitted knowing about it and tried to make my punishment easier . . ."

Dr. Sartin has approved the authenticity of Kentner's records.

As Dr. Sartin told his men, when the fighting man is captured he is through, but the hospital corpsman's work becomes more taxing. Perhaps it was the same kind of courage that motivated Kentner himself, that kept the hospital corpsmen going. It may have been training. They were organized from the beginning and never relaxed the structure of a naval hospital organization. For instance, throughout Kentner's Log are entries listing promotions of hospital corpsmen following examination for advancement in rating. They held one examination

when the Japs gave them an unexpected holiday.

With consistent restraint Kentner records many crises in the prison, but there is one that overshadows all others. It had such explosive possibilities that on November 11, 1943, Commander Hayes, then Senior Medical Officer, expressed the relief of all the prisoners when he ordered Kentner to place in the service records of thirty-seven hospital corpsmen this commendation:

"11-8-43 to 11-11-43: Served as a member of a party of thirty-seven hospital corpsmen ordered by the Japanese to three days detached duty on Corregidor, to take part in the filming of a Japanese movie. Entire group commended at mast for the splendid manner in which they conducted themselves during this trying and undesirable duty. Their behavior served the best interests of all American prisoners of this camp."

For three days the camp had been holding its collective breath. The hospital corpsmen had to play the lead parts in this movie titled *Down with the Stars and Stripes*, and there were sixty-two other Army and Navy men participating, all under command of Lieutenant Talbee of the Army Air Corps.

The Japs threatened reprisals if the men did not co-operate. The movie was to show the Jap home folks how their armies captured Bataan and Corregidor. The climax of the picture was the scene in which General Jonathan Wainwright surrendered to a Jap colonel. The doubtful pleasure of playing General Wainwright was awarded James F. Bray, Jr., Chief Pharmacist's Mate of Marshall, Illinois, while Chester K. Fast, Pharmacist's Mate, Second Class, of Haviland, Kansas, took the role of his aide.

Bray relates that in one scene they were placed in an automobile with the surrender flag out of one window and the American flag hanging out of the other. The car was one that Mrs. Douglas MacArthur had used while she was in the Philippines.

Bray also took the part of a major,

Forty-fifth U.S.A. Infantry, in sequences calculated to serve the Filipino population. These scenes were shot at a downtown Manila studio and depicted an American officer cruelly ordering his batteries to fire into a Filipino barrio. Five hospital corpsmen then were ordered to enact the parts of an American machine-gun battery, and they shot blanks at Japs who banzaied up a slope. Bray's final assignment was to don the full regalia of a three-star American general for close-ups of General Wainwright.

From the Bilibid grapevine Bray later learned that the picture was shown in the Philippines under the title of *The Dawn of Freedom*, while its original title was kept for Japanese home consumption.

The men who participated say there was no trouble, because the whole script was so naively childish that it seemed funny to them. Besides, they were called upon to be braver than the brave so that the Jap victory would seem even greater in the home propaganda mill.

"We did it because we had to and because the fellows would suffer if there was any trouble," Bray added, "But none of us will ever get Hollywood contracts. We didn't crack our faces once and we spoke our lines as though we were just learning English. I hope General Wainwright never sees those close-ups they took of me in Manila, wearing his three stars and trying to look like a general. He could sue me."

Of the thirty-seven hospital corpsmen whose movie careers began and ended with this picture, only seven survived imprisonment and the two death drafts for Japan. Kentner recorded their names among the dead and missing on December 31, 1944, when the Japanese in Bilibid gave him certain lists to type.

"I had to hold onto myself when I typed," Kentner says. "They were all shipmates. I saw them go. If not for luck, I'd be with them at the bottom of the China Sea. Then I reached Bob Dick's name."

Robert James Dick, Pharmacist's

Mate Third Class, of Tonawanda, New York, was a big smiling fellow. He worked like a slave on the wards and made the patients happy by his perpetual joy of living. He was a pal of Kentner's. Dick was nineteen when Manila fell. He had been in the Navy only a year and a half. He was bewildered, and Kentner gave him some of the stability that experience brings. In many messages home Dick told his folks Kentner was steering him.

But Kentner was not able to steer Dick when he was named for the Japan draft of October 11, 1944. The night before the draft left, he came to Kentner with a penciled note to his mother. Three days later Bob Dick was dead in Subic Bay. Kentner delivered the note to his mother last April.

Bob Dick deserves a special place in the roster of Americans who have given their lives in this war, for he also left a message that was found by the Army. In it he expressed a philosophy that is shared by all his fellow hospital corpsmen. On March 21, 1944, all the prisoners were ordered by the Japs to write their war biographies. This is what Dick wrote:

"I am a pharmacist's mate in the Hospital Corps of the United States Navy. I wasn't on Bataan or Corregidor and therefore I did not have the experiences that most of these men have had. Even if I had gone out to the front my duties would have been only to take care of the sick and wounded. I was attached to this unit before the war, during the war, and I have been with this unit ever since we were taken prisoners at Santo Scholastica College. I have only done my part in taking care of the sick and wounded. At times we were short of medicines our task was harder, but we did the best we could and that is all that can be expected. As far as my present state of mind is, all I can say is that I am an American." □

Victor Ullman was an ex-pharmacist's mate who had been on the staff of the *Hospital Corps Quarterly* and assigned to BUMED. Robert Kentner retired from the Navy in 1956 as a lieutenant in the Medical Service Corps.

Computer Assisted Medical Interactive-video System

Frank Toth, Ph.D.
Philip M. Strub, M.A.

In 1979 the Naval Health Sciences Education and Training Command (HSETC) began developing the Computer Assisted Medical Interactive-video System (CAMIS). This system employs converging laser videodisc and microcomputer technologies to improve the quality and availability of training in supporting school curriculum and operational medical requirements.

Through videodisc technology, trainees can encounter highly realistic

simulations of combat, mass casualty, or shipboard emergency. These can be accessed and replayed at will, according to an individual's schedule and availability.

By adding the microcomputer, an interactive environment can be created that automatically routes trainees through a comprehensive training matrix that continuously tailors itself to individual progress through the program.

Interactive-video systems also allow

one to retrieve automatically copious user performance and system data, if desired.

In contrast, traditional audiovisual media such as films and videotapes are linear programs which pose well known but critical limitations. First, there is no adequate method for obtaining feedback regarding individual use of and performance through each separate program. For cost-effectiveness, linear media are produced for the largest possible audience for each



An integral part of CAMIS is the laser-read videodisc.



content area. No matter what individual skill levels are, all viewers start at the beginning of a program and progress in rigid manner to the end, receiving exactly the same information at exactly the same pace.

Finally, there is no room for presenting multiple or complex alternative scenarios and certainly no means for varying outcomes depending on individual choices.

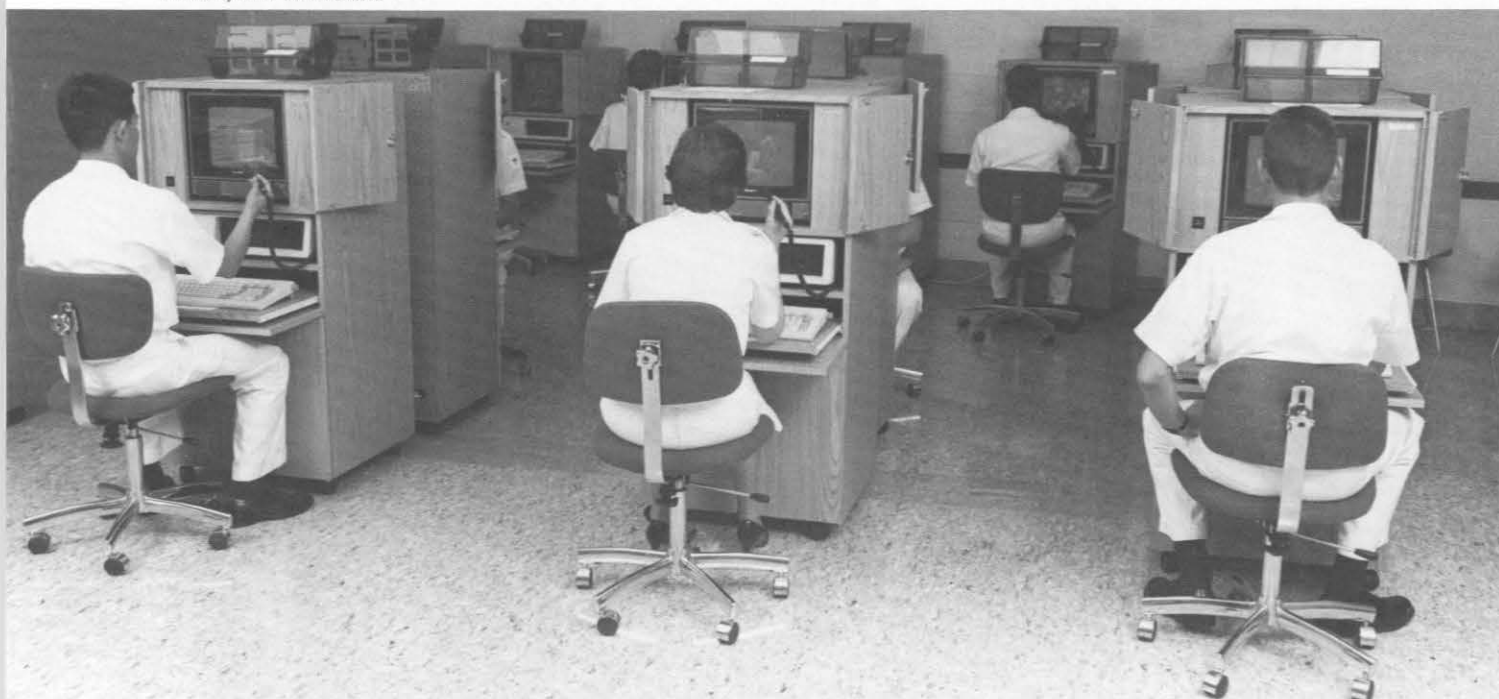
In short, interactive-video disc (IVD) represents a compelling and in-

novative means for overcoming inherent shortcomings in existing techniques. It also provides training alternatives that hitherto were simply impossible for reasons of cost, logistics, or other practical considerations.

CAMIS was established through the Program Objectives Memorandum process. The original broad goals of CAMIS—since enlarged upon—were twofold: to reduce academic attrition of hospital corpsman (HM) and dental technician (DT) in "A" and

"C" schools, and to provide standardized inservice training at naval hospitals. Plans were developed and contracts let. The plan allowed for simultaneous installation of hardware delivery systems and interactive-video programs first at the schools, over a 3-year period, and then, in another 3-year period, at all naval hospitals.

The first 50 CAMIS carrels were installed in FY85 at the Naval Hospital Corps School, Great Lakes, IL, the Naval School of Health Sciences and



CAMIS enables students to proceed at their own pace.

Naval School of Dental Assisting and Technology in San Diego, CA, the Naval School of Health Sciences Bethesda, MD, and at its detachment in Portsmouth, VA.

Unfortunately, completion of programs under contract lagged far behind predetermined equipment delivery schedules, with the result that only one program was provided initially in prototype form. This initial program has since been refined and other programs delivered. These will be described later in this review.

Installation of the remainder of the school CAMIS equipment, as well as that for the first 11 naval hospitals, was postponed several times by the long-delayed resolution of a protest lodged by an equipment vendor against Navy contracting procedures. The long-awaited installation will begin this year with an additional 67 carrels at the schools, and 53 for 11 naval hospitals. The remaining 19 hospitals will be equipped by the end of FY89, as shown in table.

The stand-alone, individual training station is called a "carrel," a term borrowed from language labs. Each is

equipped with an IBM or compatible microcomputer with 640 kilobytes (KB) of random access memory, 20 megabytes (MB) hard disc drive, and proprietary graphics/controller card. The other carrel components are a laser videodisc player and a high resolution color monitor with light pen. These reside within a locking cabinet equipped with a fan and casters.

The microcomputer controls the laser videodisc player and generates graphics which can be superimposed over moving and still video images from the videodisc player.

The laser disc player uses the constant angular velocity and optical reflective methods to play visual and audio sequences in a manner comparable to compact audiodiscs. Each side of a laser videodisc can contain any of approximately 54,000 still images, 30 minutes of linear motion video, or 1 hour of audio, all randomly accessible in less than 3 seconds. Unlike videotapes, motion pictures, and phonograph records, playing back videodiscs does not pose hazards for or degrade them.

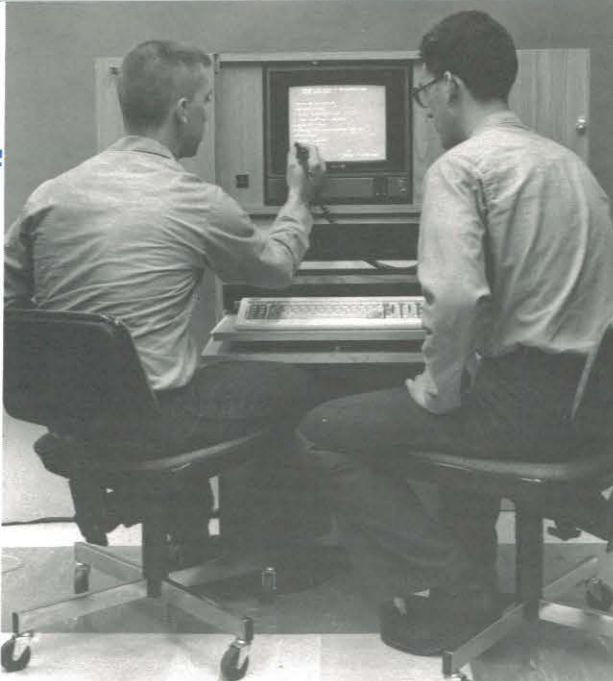
Typically, the computer program of

each new CAMIS program is loaded on the hard disc from one or two floppy discs via a resident shell program. The shell program also provides user assistance, collects system use data, and permits disc formatting, copying, and other routine tasks. Trainees use the floppy drive to collect individual data such as their progress through a given program.

The first CAMIS programs were designed to support the "A" school curriculum. CAMIS is intended to serve as a productivity tool in the hands of the instructor. Instead of a time-consuming remedial effort, instructors now refer students who have received low test scores on a given portion of the curriculum to the school learning resource center. There, individuals or groups of up to three students review the material before being retested. Those who continue to experience difficulty then receive individual instructor attention.

An example is the program entitled "Emergency Medical Conditions." Although emergency medical conditions comprise only 3 percent of the curriculum, their understanding is critical. It

Site	Current Carrels	FY87 Carrels	FY88 Carrels	FY89 Carrels	Total Carrels Per Site
Beaufort, SC				3	3
Bethesda, MD		5	3		8
Bremerton, WA			4		4
Camp Lejeune, NC		3		3	6
Camp Pendleton, CA		3		3	6
Charleston, SC			4		4
Cherry Point, NC				3	3
Corpus Christi, TX				3	3
Great Lakes, IL			4		4
Groton, CT				4	4
Guam			3		3
Guantanamo Bay, Cuba				3	3
Jacksonville, FL		3			3
Lemoore, CA				3	3
Long Beach, CA		4			4
Millington, TN				4	4
Naples, Italy		3			3
Newport, RI			4		4
Oak Harbor, WA				4	4
Oakland, CA		6			6
Okinawa, Japan		3			3
Orlando, FL				4	4
Patuxent River, MD				3	3
Pensacola, FL			4		4
Portsmouth, VA		5	3		8
Roosevelt Roads, PR				3	3
Rota, Spain			3		3
San Diego, CA		5	3		8
Subic Bay, RP			3		3
Yokosuka, Japan		3			3
NSHS San Diego, CA	15	25			40
NSDAT San Diego, CA	5	5			10
NHCS Great Lakes, IL	20	25			45
NSHS Bethesda, MD	3	2			5
NSHS Portsmouth, VA	3	5			8
NUMI		5			5
BCC	1	4			5
HSETC	3	5			8



By touching the light pen to the screen the student, using interactive video, can record his responses to questions or retrace his steps back through a program. A correct response enables him to continue with the lesson.

The Video Generation

With the inventions of motion pictures, television, and the computer, all aspects of communication have undergone a profound revolution. Since the 1960's television has become one of the most important influences in the average American home. Growing up with television has become a human condition. Never before has an entire generation been weaned by an electronic box and raised while spending many of its waking hours watching the "tube."

The television revolution in the United States started between 1950 and 1960, and in that decade the number of TV sets increased from 4 to 53 million. By 1960 the typical household was watching television 5 hours every day. By 1970, 88 million TV sets were in use, and today there are more than 180 million turned on approximately 8 hours a day. In less than 40 years, or one generation, the world has been swamped by the medium, and the accompanying programming made available through cable and satellite. While we watch one program, VCR's can record other programs for playback at a later time.

Infants begin watching television shortly after birth as their mothers often relax while feeding them. The baby's attention is drawn to the color, movement, and sound on the screen, and the infant tends to watch the set rather than mother's face or hands.

When children reach 2, parents often encourage them to watch "Sesame Street" and other educational pro-

grams to stimulate the child's mental and motor skills. More often than not, television is the baby-sitter and has become a major cultural influence in our society. Television viewing can become habit-forming and in many homes the TV drones all day regardless of program or who may be watching.

Throughout their development, children frequently watch television while doing homework. By the time they graduate from high school it is estimated that they will have accumulated 18,000 TV hours and only 12,000 hours with their school curriculum.

Not surprisingly, motion pictures and television have had a tremendous influence on education. In some schools students spend hundreds of hours in media lab learning to use television. Some schools even offer students the opportunity to produce their own daily news programs.

And now we have the computer, a major influence in our lives during the past 10 years. The ubiquitous computer is found in shopping malls, computer game arcades, classrooms, and homes. From youngster to teenager, computer games are an essential part of growing up. Many high school graduates spent thousands of hours with computer games and the experience hasn't been all bad. Students have increased their cognitive skills of eye and hand coordination to a higher level than in any past generation. They have also mastered quick decision making with "pac man" and other games. These are the young adults now entering our military service schools.

In the past, motion pictures became an important tool in military education and training. In 1941 the Navy Medical Department made the first medical training films for use in training hospital corpsmen, to demonstrate surgical procedures, and to introduce new preventive medicine procedures. In the past 46 years we made hundreds of training films and videotapes to teach almost every aspect of Navy medicine.

Now it is essential that we take advantage of the improved visual perception and cognitive skills generated by the twin visual technologies of television and computer. When students arrive at our service schools we must supplement traditional training with up-to-date learning technology such as interactive video. This modern marriage of TV monitor and computer offers students instant feedback and reinforcement for their learning efforts.

We have already laid the foundation for interactive video to support medical education and training in all fields of naval medicine in the 1990's. This is the logical next step in helping to prepare members of the video generation for the challenges they will face as members of the Navy Medical Department. —Frank Toth

is one content area particularly suitable for interactive-video. The program consists of a series of case studies simulating the experiences of emergency medical technicians responding to calls for help. Students work singly or in small groups, deciding what to do when. Ultimately, they are asked to second guess a medical officer regarding the disposition of the patient and the likely condition encountered.

Informal but extensive written feedback from students shows a high degree of enthusiasm for this program. A recurring theme running through student's comments is the belief that CAMIS brought to life and made comprehensible content that in the classroom seemed abstract. Interestingly, high-achieving students seeking to improve their performance are also found sitting at CAMIS carrels reviewing the same programs. A formal, independent evaluation has only recently been initiated; however, preliminary data suggests that both groups of students improve their test scores by using CAMIS.

In the hospitals, CAMIS carrels and programs will be located in medical library spaces, where learning resource centers are not available. Copies of all programs will be available, although those specifically designed for use in

hospitals are also in completion and development.

Such a program is "Advanced Combat Trauma Life Support for Physicians (ACTLS)." Developing programs to support fleet hospital readiness is one of the new requirements assigned to CAMIS since its establishment.

ACTLS, designed by CAPT Joseph V. Henderson, MC, USNR, and developed in cooperation with the Uniformed Services University of the Health Sciences, provides practice and refresher training in the trauma decision making skills learned through the Advanced Combat Life Support training course. It is set in the casualty receiving area of a combat zone fleet hospital, and has five highly realistic case studies of increasing difficulty and complexity. Working against a clock, physicians practice trauma management, observing the consequences of each action or inaction.

Another new requirement is supporting the refresher training/Personal Qualification Standard for the Navy Enlisted Classification (NEC) HM-8425 and HM-8402 communities. Currently, six comprehensive programs are under development which make heavy use of realistic case

studies, including "Recognition and Management of Respiratory Conditions," and "Clinical Application of Laboratory Procedures." A description of all CAMIS programs completed and in development follows this article.

In response to requests from all geographic commanders, plans have been developed to provide CAMIS to designated medical and dental clinics and branch clinics. The primary purpose is to provide training to locations where traditional education and training is limited or unavailable altogether.

A prototype system is currently undergoing informal "sea trials" with the Medical Department aboard USS *Guadalcanal*. At the same time, research is ongoing to incorporate CAMIS capability into the SNAP/SAMS systems intended initially for small combatants and submarines.

With the recently signed memorandum of understanding with the Navy Management Systems Support Office, HSETC will develop training for independent duty corpsmen in the operation of the shipboard computer system, SNAP Automated Medical Systems (SAMS). HSETC will provide technical assistance in adopting SAMS for interactive-video, as well as supplying copies of CAMIS programs

Best Overall Achievement

The developer and project chosen to represent the Best Overall Achievement in the 1987 Nebraska Interactive Videodisc Award competition is the Naval Health Sciences Education and Training Command for the videodisc entitled "Advanced Combat Trauma Life Support."

"Advanced Combat Trauma Life Support" is a brilliant production notable for its outstanding dramatic presentation as well as for its excellent instructional design. Designed to provide experience in clinical decision making under combat conditions, the production presents many clinical options in a very realistic manner. The control structure provides a very large range of decision options and the user feedback design is excellent. The dramatic performances and the pacing of the action approach documentary-level realism. Overall, the production ranks with the best interactive videodiscs developed to date and is another milestone in the state of the art.



Dr. Frank Toth (right) turns over the award to HSETC's Commanding Officer, CAPT Harold M. Koenig, MC.

to the ships which then become interactive-video capable.

Since the U.S. Army is fielding its own much larger interactive-video system, HSETC has formalized its close liaison with the Army Academy of Health Sciences, Fort Sam Houston, TX, with a memorandum of understanding sharing expertise and coordinating program development.

HSETC has also joined the recently

established Consortium of Medical Schools to introduce interactive video in medical education and training throughout academia. A primary objective of the consortium is to offset the cost of developing IVD programs by increasing their availability and transportability within the U.S. medical school community.

By adopting CAMIS, HSETC has continued to maintain high standards

in developing and utilizing the best technology available. Of no less great concern, is our commitment to a cost and communicator-effective system for our schools and hospitals.

Dr. Toth is director of Biomedical Communications, Management Directorate, Naval Health Sciences Education and Training Command, Bethesda, MD 20814-5022. Mr. Strub is deputy director.

* * *

CAMIS Productions Completed

504442 DD Advanced Combat Trauma Life Support

Simulation training for nonsurgeon physicians based on the advanced trauma life support training. Field hospital and combat conditions are simulated. Five variations of a penetrating thoracic missile wound provide experience in clinical decision making through case simulation. The cases are of increasing difficulty.

801526 DN Emergency Medical Conditions

29 comprehensive case studies providing remedial/ refresher training for curriculum support for Emergency Medical Technicians (EMT) in hospital "A" school. Conditions covered include angina pectoris, myocardial infarction, diabetes mellitus, insulin shock, stroke, epilepsy, and congestive heart failure. A complete glossary is included with the courseware.

802043 DN Oral Examination Assisting

Remedial/ refresher training for dental technician "A" school. Provides practice in dental charting including charting missing teeth, identifying various types of amalgams, recognition of amalgam shapes, and location of fillings.

801546 DN Basic Medical Skills

Remedial/ refresher training based on the hospital corps school "A" curricula. The six major lessons include vital signs (temperature, pulse, respiration), blood pressure, assessment, hemorrhage control, shock, and soft tissue injuries. The student may study these in three different modes: Learn, Review, or Look-Up. Learn goes through all the material in a lesson in sequence. Review allows selection of a topic and exercises within a lesson. Look-up provides information on a specific topic within a lesson.

803496 DN Mediquiz

Basic medical knowledge, review, and drill for hospital corps "A" school personnel in a game show format.

35170 DN Anatomy & Physiology Introduction (Homeostasis)

One of a nine-part refresher series including an overview and lessons on homeostasis and terms of reference. Each lesson is further divided into normal structure and functions, possible disorders, vocabulary, and medical situations. A glossary, chart, and summary are provided for each lesson. A test with immediate feedback is available.

35171 DN Anatomy & Physiology, The Musculo-Skeletal System

One of a nine-part refresher series including an overview and lessons on the muscular system and the skeletal system. Each lesson is further divided into normal structure and functions, possible disorders, vocabulary, and medical situations. A glossary, chart, and summary are provided for each lesson. A test with immediate feedback is available.

35172 DN Anatomy & Physiology, The Circulatory System

One of a nine-part refresher series including an overview and lesson on circulation. Each lesson is further divided into normal structure and functions, possible disorders, vocabulary, and medical situations. A glossary, chart, and summary are provided for each lesson. A test with immediate feedback is available.

35173 DN Anatomy & Physiology, The Respiratory System

One of a nine-part refresher series including an overview and lessons on regulating breathing, expanding the lungs, channeling air, and the exchange of oxygen and carbon dioxide. Each lesson is further divided into normal structure and functions, possible disorders, vocabulary, and medical situations. A glossary, chart, and summary are provided for each lesson. A test with immediate feedback is available.

35174 DN Anatomy & Physiology, The Digestive System

One of a nine-part refresher series including an overview and lessons on channeling food, breaking down food, absorbing nutrients, and removing wastes. Each lesson is further divided into normal structure and functions, possible disorders, vocabulary, and medical situations. A glossary, chart, and summary are provided for each lesson. A test with immediate feedback is available.

35175 DN Anatomy & Physiology, The Urinary & Reproductive System

One of a nine-part refresher series including an overview and lessons on filtering blood, voiding urine, and the reproductive system. Each lesson is further divided into normal structure and functions, possible disorders, vocabulary, and medical situations. A glossary, chart, and summary are provided for each lesson. A test with immediate feedback is available.

35176 DN Anatomy & Physiology, The Endocrine System

One of a nine-part refresher series including an overview and a lesson on hormone control. Each lesson is

further divided into normal structure and functions, possible disorders, vocabulary, and medical situations. A glossary, chart, and summary are provided for each lesson. A test with immediate feedback is available.

35177 DN Anatomy & Physiology, The Nervous System

One of a nine-part refresher series including an overview and lessons on directing voluntary and involuntary responses, brain function, regulating autonomic processes, and protecting the nervous system. Each lesson is further divided into normal structure and functions, possible disorders, vocabulary, and medical situations. A glossary, chart, and summary are provided for each lesson. A test with immediate feedback is available.

35178 DN Anatomy & Physiology, The Integumentary System and Special Senses

One of a nine-part refresher series including an overview and lessons on protecting and perceiving the body. Each lesson is further divided into normal structure and functions, possible disorders, vocabulary, and medical situations. A glossary, chart, and summary are provided for each lesson. A test with immediate feedback is available.

CAMIS Programs in Production

802458 DN Recognition and Management of Acute Respiratory Conditions

Refresher training for independent duty corpsmen (IDC) for NEC 8425 (advanced hospital corpsman) and NEC 8402 (nuclear submarine medical technician). The major lessons will include assessment and treatment of anaphylaxis, asthma, bronchitis, pleurisy, pneumonia, and pneumothorax (tension, spontaneous, and traumatic). (To be delivered in FY88)

802459 DN Recognition and Management of Cardiovascular Conditions

Refresher training for independent duty corpsmen (IDC) for NEC 8425 (advanced hospital corpsman) and NEC 8402 (nuclear submarine medical technician). Lessons will include venous stasis, congestive heart failure, myocardial infarction with and without angina pectoris, and hypertensive crisis. (To be delivered in FY88)

802460 DN Recognition and Management of Abdominal Conditions

Refresher training for independent duty corpsmen (IDC) for NEC 8425 (advanced hospital corpsman) and NEC 8402 (nuclear submarine medicine technician). The major conditions will include acute gastritis, hydrocele and testicular tumor, peptic ulcer disease with perforation and hematemesis, staphylococcal food poisoning, diverticulitis, anal fissure with perirectal

abscess, diarrhea due to fecal impaction, gonorrhea, and orchitis. (To be delivered in FY88)

802461 DN Recognition and Management of Acute Dermatological Conditions

Refresher training for independent duty corpsmen (IDC) for NEC 8425 (advanced hospital corpsman) and NEC 8402 (nuclear submarine medicine technician). The major conditions will include vesicobulbous diseases, pyoderms, dermatitis group, papulosquamous group, erythema group, purpuric eruptions, acneform conditions, pigmentary disorders, benign and malignant tumors, and sexually transmitted diseases. (To be delivered in FY87)

803459 DN Recognition and Management of Dental Conditions

Refresher training for independent duty corpsmen (IDC) for NEC 8425 (advanced hospital corpsman) and NEC 8402 (nuclear submarine medicine technician). (To be delivered in FY88)

803460 DN Clinical Applications of Laboratory Procedures

Refresher training for independent duty corpsmen (IDC) for NEC 8425 (advanced hospital corpsman) and NEC 8402 (nuclear submarine medicine technician). (To be delivered in FY88)

803206 DN Preventive Medicine in the Combat Theater and Differential Diagnosis of Clinical Conditions

Simulation training for physicians operating with Fleet Marine Forces to teach preventive medicine practices in the combat environment, the importance of good preventive planning and practice to the military combat mission, and the role and duties of the staff medical officer in the preventive medicine aspects of combat health care. (To be delivered in FY87)

802098 DN Dental Anatomy & Physiology

Remedial/refresher training for dental technician "A" school. The major lessons include the function of dental physiology and dental anatomy (structure and function of the teeth, mandible, and maxilla). Emphasis is placed on definition and terms associated with dental anatomy & physiology. (To be delivered in FY87)

802099 DN Basic Medical Skills Part II

Remedial/refresher training based on hospital corps school "A" curricula. The major lessons include oxygen therapy, thoracic injuries, and abdominal injuries. (To be delivered in FY87.)

802100 DN Basic Medical Skills Part III & IV

Remedial/refresher training based on hospital corps school "A" curricula. The major lessons include treatment and assessment of upper and lower extremities, the head and nervous system, and the face, neck, eye and ear. (To be delivered in FY87)

803209 DN Radiation Biology

Training for advanced X-ray technician "C" school. Describes the effect of radiation of human cells including oncology treatment and radiotherapy. (To be delivered in FY88)

Fighting Fit

Wellness and preventive medicine is what the Medical Department promotes as a matter of course. It's all part of the job description. Granting patients clean bills of health is obviously preferable to spending time and resources putting them back into fighting trim.

This philosophy is certainly not unique to our health providers. Line commanders concerned about their sailors are actively promoting health and physical fitness with innovative programs of their own. A case in point is the highly imaginative regimen introduced by VADM James E. Service, Commander, Naval Air Force, Pacific Fleet. In a recent letter to the Chief of Naval Operations, VADM Service outlined a program that stresses lifestyle rather than mere physical fitness.

Well before the formal release of OPNAVINST 6110.1C, I had directed my staff to begin working on a health promotion/physical fitness program that would benefit all NAVAIRPAC service members—an expansion of what I had started at the Naval War College. The program goes beyond fitness alone to encompass many lifestyle choices—to-bacco, abuse, overeating, poor nutrition, and sedentary living. Although some resistance to change was initially expected, the program, coined "Fighting Fit," has proven to be a very effective complement to the Health and Physical Readiness (H&PR) programs.

We found some problems along the way as you might well imagine. A number of Rec Services individual fitness programs were either nonexistent, geared only

toward the elite athlete (powerlifting equipment instead of circuit weight training devices), or locked into the intramural/gear issue mode of doing business. More disturbing was that programs were frequently scheduled for the convenience of the Rec Services staff and not the active duty population they served (opening hours of 0800, but now changed to 0530 at some bases). As changes have been made, mutually beneficial progress has followed. For example, by offering timely (five times per day, before, during, and after working hours) aerobic remedial Level I H&PR programs, facility usage has risen dramatically. Further, service members' positive perception of Rec Services as provider has improved, as individuals in many cases became "hooked" on personal fitness. Clearly, fitness centers in the future must play a much more active role in responding to the active duty sailor's needs.

Excellent progress is being made in other areas as well. My staff is actively investigating and correcting supply system flaws that have in the past limited the availability of nutritionally sound food alternatives for the force. Aboard carriers and shore stations alike, environmental changes have been made to encourage healthier food choices through convenience and marketing. (For example: availability of salad bars, labeling of foods with "high performance, heart healthy" stickers, mirrors, and scales positioned at the head of chow lines, calorie counters on all tables, removal of condiments to a central area to avoid "impulse" sweetening and seasoning, etc.). After meeting with ADM

82481 DN Eject and Survive

Refresher training manual egress from the Martin Baker ejection seat for air crewmen. (Completed and in field test, 1985)

800352 DN G-force Loss of Consciousness

To teach naval aviators about the physiological effects of g-forces. A simulation is provided to allow naval aviators an opportunity to practice anti-g straining maneuvers. (To be delivered in FY88)

Commercial Productions Purchased

803325 DN Interactive Math (Health Edutech, Inc.)

A series of 11 videodisc programs covering 4 chapters of basic math and 5 chapters in applied algebra. Includes placement test, instructor's guide and learner's guide.

Atlas of Hematology

8,000 microscopic images placed on a videodisc to be used for cell identification for medical laboratory, pathology, and transplant technicians in advanced medical laboratory "C" school.

Proposed CAMIS Productions

Fleet Hospital Training Set Up
Hospital Ship Training, Patient Transfer Techniques
Shipboard Acute Burn Care
Triage: And Surgical Priorities
Triage: For Dental and Nurse Corps Officers
Shipboard Casualty Management
Patient Assessment for Medical Personnel
Nuclear, Biological, Chemical Warfare: Personal
Survival for Medical Personnel
Combat Psychiatric Injuries
Combat Trauma Life Support: Head Injuries

Don Wilson, commissaries Navywide will begin a color-code labeling system, marking all items to readily identify low sodium, low fat, and low calorie food choices for shoppers. Similarly, menus and recipe changes in the galley have been made to assure better food choices, along with a convenient dieter's plate. Ted Walker has agreed to modify training for our mess specialists so they can understand nutrition, fiber, sodium, and balanced diets.

These changes have been enthusiastically accepted by the majority. We are working to institutionalize them by ensuring the Ney Award reflects such initiatives, by developing a presentation to be used during NAVFSSO Food Management Team assist visits, and by changing NAVAIRPAC command inspection procedures to reflect the changes.

In the area of tobacco prevention, where improvement would probably have the largest health impact, similar progress has been made. Smoke-free days, no smoking spaces being the norm rather than the exception, and the ready availability of smoking cessation programs, are all aimed to reduce the incidence of this destructive lifestyle. It is my firm belief, strongly backed by epidemiological studies, that education alone will not produce the desired behavior change. We must, instead, concentrate on reducing the availability/opportunity to smoke. That our exchanges continue to encourage sales of tobacco products through low cost and strategic placements (i.e., checkout stands—impulse buying area), our base papers run full page

cigarette ads, and cigarette machines are still readily available aboard our bases and ships, strikes me as running counter to our H&PR goals. The CO of USS *Carl Vinson* recently converted his tobacco shop into an Aerobics Fitness Center; more initiatives of this type are needed.

In order to become a successful program, integration of all components and attention to detail are required. If roads are being repaved on a given base, bicycle paths along the roadway should be considered. Rec Services personnel should actively support the Command Fitness Coordinator's remedial programs. The Medical Department must take an aggressive stance, emphasizing a prospective, preventive medicine approach. And finally, commanding officers need to demand the support required. There's not much sex in "wellness" but it's a superb force multiplier!

Be assured that through our "Fighting Fit" program, your H&PR objectives are being taken very seriously. Scientific evaluation of our program is being conducted at present by personnel from the Naval Health Research Center, at both my own and at ADM Sam Yow's request. I am confident the results you expect—a healthier, fitter, prouder sailor—will result from our efforts. We're definitely on the right track and I wanted to share our success with the leadership that made it possible!

With greatest respect,
VADM James E. Service

Chlamydial Urethritis: The Most Frequent Form of Nongonococcal Urethritis

CAPT Alfred D. Heggie, MC, USNR

Genital infections with *Chlamydia trachomatis* are currently the most prevalent sexually transmitted diseases in the United States and much of the industrialized world.(1-5) Chlamydial infection is the cause of approximately 50 percent of cases of nongonococcal urethritis (NGU), a disease that is estimated to occur 2½ times more frequently than gonococcal urethritis.(1)

The importance of chlamydiae as sexually transmitted pathogens was not recognized until relatively recently because methods for their detection were not generally available. The first practical procedure for isolation of *Chlamydia trachomatis* was developed by microbiologists at the Naval Medical Research Institute, Bethesda, MD.(6) They devised a technique for growing *Chlamydia trachomatis* in cell culture. Since that time, extensive epidemiologic studies have been conducted using this technique, or subsequent modification,(4,5) and the importance of this organism as a highly prevalent sexually transmitted pathogen is now recognized.

Chlamydia trachomatis was originally thought to be a virus because it is similar to viruses in size and, like viruses, is able to grow only in living cells. Chlamydiae are now classified as bacteria, however, because all their other properties are identical to those of bacteria. Like bacteria, they are susceptible to certain antibiotics and the infections they cause can be cured by appropriate antimicrobial therapy.

NGU is a syndrome in men, of which *Chlamydia trachomatis* is the most frequent recognized cause. Cases caused by chlamydiae cannot be differentiated from nonchlamydial cases except by laboratory tests for detection of these organisms. Men with either chlamydial or nonchlamydial NGU usually complain of itching of the urethra, burning on urination, and a mucopurulent, somewhat watery ure-

thral discharge. In comparison with gonorrhea, the symptoms are less severe, the urethral discharge is usually not as purulent or profuse, and the interval between sexual contact and onset of symptoms is typically longer in NGU (1-5 weeks, with a peak at 2-3 weeks) than in gonococcal urethritis (2-6 days).(7)

Microscopic examination of Gram-stained smears of urethral discharges from both gonococcal urethritis and NGU usually show an average of at least 5 polymorphonuclear leukocytes (PMN) per oil immersion field (1000X magnification).(8) Intracellular Gram-negative diplococci (*Neisseria gonorrhoeae* that have been phagocytized by PMN's) are usually present in smears of discharges from gonococcal urethritis and are absent in NGU.(9) In some men, chlamydial infection of the urethra may result in few or no symptoms(10,11) and, therefore, escape detection. In men with gonococcal infections, asymptomatic cases are much less frequent.

The acute urethral syndrome is a disorder in women that consists of dysuria and frequency of urination in the absence of significant numbers of bacteria ($< 10^5$ /ml) in voided urine samples.(12) *Chlamydia trachomatis* infection has been documented in 20 percent of women with this syndrome.(13,14) Chlamydial infections of the lower female genital tract frequently involve both the cervix and urethra. Although these infections are often asymptomatic, patients may present with complaints that include abnormal vaginal discharge, sensations of burning or itching, dysuria, or dull pelvic pain. Diagnosis requires a gynecologic evaluation, including cultures of the cervix and urethra.

Definitive diagnosis of chlamydial urethritis requires detection of *Chlamydia trachomatis* in urethral swabs by growth of the organism in cell culture,(15) or by demon-

stration of the presence of chlamydial antigen in smears of urethral cells by fluorescent microscopy,(16) or enzyme-linked immunoassay.(17) When these tests are available, specimens should be collected and transported as directed by the laboratory involved.

Because these procedures are complex and require special equipment and expertise, they are unlikely to be available to medical personnel shipboard or in the field. Without these tests, a definitive diagnosis of chlamydial urethritis cannot be made, but in order to select appropriate treatment it is still important to differentiate NGU from gonococcal urethritis on the basis of clinical evaluation, Gram stain examination of the urethral discharge, and urethral culture for *Neisseria gonorrhoeae*.

Because chlamydiae have been shown to be the cause of approximately 50 percent of cases of NGU, treatment for chlamydial infection should be given when a diagnosis of NGU is made, even if laboratory tests for detection of *Chlamydia trachomatis* are unavailable. Treatment should also be given to patients in whom chlamydial infection of the urethra or cervix has been confirmed by laboratory tests.

Treatment regimens recommended by the U.S. Public Health Service should be followed.(2) These consist of tetracycline hydrochloride (500 mg, by mouth, 4 times a day, for 7 days) or doxycycline hyclate (100 mg, by mouth, 2 times a day, for 7 days). For patients who cannot tolerate tetracyclines or in whom these medications are contraindicated, erythromycin base or stearate (500 mg, by mouth, 4 times a day, for 7 days) or erythromycin ethyl succinate (800 mg, by mouth, 4 times a day, for 7 days) should be used as alternative treatments.

Pregnant women should be treated with erythromycin instead of tetracycline because tetracycline may damage the teeth of the developing fetus. Also, because of possible damage to developing teeth, erythromycin should be used instead of tetracycline to treat chlamydial infections in children under 9 years of age.

If not treated, chlamydial infection of the male urethra may spread via the vas deferens to the epididymis and cause epididymitis. Chlamydial infection is the most frequent cause of epididymitis in sexually active males under the age of 35.(18) In women, infection may spread from the lower to the upper female genital tract and cause pelvic inflammatory disease.(3,19) When this complication is suspected, gynecologic consultation should be obtained because more intensive treatment is required than when

infection is limited to the urethra or cervix. If untreated, this condition may result in sterility or predisposition to ectopic pregnancy.(20)

Infected pregnant women, if untreated, may transmit the infection to their infants during delivery and the infants may develop chlamydial conjunctivitis or pneumonia.(21, 22) Untreated persons, both male and female, will also continue to spread this infection to their sexual contacts. As with other sexually transmitted diseases, sexual contacts of patients should be identified and treated whenever possible.

The antibiotics usually employed for treatment of gonorrhea are ineffective against chlamydial infections. Therefore, patients who have urethral infections with both chlamydiae and gonococci frequently develop symptoms of chlamydial urethritis a few days after the symptoms of gonococcal infection have responded to treatment. This is because the incubation period for chlamydial urethritis (1-3 weeks) is longer than that for gonococcal urethritis (2-6 days).

When both infections are acquired simultaneously, the symptoms of gonorrhea usually appear first and cause the patient to seek treatment. Then, a few days after gonorrhea responds to treatment, the symptoms of chlamydial urethritis appear because this infection has not been eradicated by the treatment for gonorrhea. Although this syndrome of recurrent urethritis has been called post-gonococcal urethritis, it is usually unrelated to gonorrhea and most frequently results from chlamydial infection acquired during the same sexual exposure. However, the possibility of persistent or recurrent symptoms due to infection with penicillin resistant strains of *Neisseria gonorrhoeae* must be ruled out by obtaining appropriate cultures.

Because gonococcal and chlamydial infections occur together so frequently, it is currently recommended that patients with gonorrhea be given tetracycline or doxycycline for 7 days in the dosages recommended for treatment of chlamydial infection, *in addition to* the antibiotics administered for treatment of gonorrhea.(2,23,24) Erythromycin should be used for patients in whom tetracyclines are contraindicated or not tolerated.

Because *Chlamydia trachomatis* is the cause of approximately only 50 percent of cases of NGU, treatment for chlamydial infection may not cure all patients with this syndrome.(8) Another microorganism, *Ureaplasma urealyticum*, has frequently been isolated from cases of NGU

but its role in this disease has not been clearly defined. Fortunately, ureaplasma is usually susceptible to both tetracyclines and erythromycin and, like chlamydiae, should be eradicated by treatment with these antibiotics. Most patients with NGU that recurs or persists after completion of appropriate antimicrobial therapy are culture-negative for both *Chlamydia trachomatis* and *Ureaplasma urealyticum*.⁽⁷⁾ The causes of these refractory cases can seldom be determined.

Prevention of sexually transmitted diseases, including chlamydial infections, relies primarily on education of personnel regarding the nature of these infections and the ways in which they are spread. Awareness of the health hazards involved may influence behavior so that sexual promiscuity and the likelihood of exposure will be decreased and/or that infected persons will be motivated to seek medical attention promptly when symptoms occur. Although barrier methods, such as condoms, offer only limited protection against chlamydial and other sexually transmitted diseases, they should be advised for personnel who are likely to have multiple sexual partners.

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Navy Nurse Josie Mabel Brown 1886-1987

Josie Mabel Brown, the oldest Navy nurse, died in Escondido, CA, on 11 Oct 1987. She was 101. Ms. Brown was the subject of an interview in the May-June 1986 issue of *U.S. Navy Medicine*.

INDEX

Vol. 78, Nos. 1-6, January-December 1987

- ABSCCESS, retropharyngeal, metastatic carcinoma masquerading as 1:24
- Accounting
medical expense and performance reporting system 5:18
- A first year student's impression of OIS 1:10
- Aircraft
mass casualties in the aircraft carrier environment, management of 2:15
- Anesthesia machine, field, hidden obstruction of 1:16
- Antabuse and optic neuritis 5:26
- Antarctica, cold temperature studies in 1:2
- Appendectomy performed aboard ship in 1942 1:20
- BAD breath 5:22
- Baker, K.H., MSN, RN, oral care for head and neck cancer patients undergoing radiation therapy 6:7
- Bankson, J.H., medical expense and performance reporting system 5:18
- Beating the sting: operational entomologists protect the troops 2:10
- Bendele, J.G., LCDR, NC, hidden obstruction of field anesthesia machine 1:16
- Blood
plateletpheresis 5:20
- Boone, J.T., VADM, MC (deceased) 2:22
- Boot cast 1:26
- Brittain, J.L., LCDR, MSC, Antabuse and optic neuritis: a case report 5:26
- Brown, J.M., oldest Navy nurse dies 6:26
- Burnette, D., LCDR, USNS *Mercy* 5:2
- Byrd, J.P., M.D., metastatic carcinoma masquerading as retropharyngeal abscess 1:24
- CAMIS (Computer Assisted Medical Interactive-video System) 6:14
- Cancer
colorectal, screening for 1:6
metastatic carcinoma masquerading as retropharyngeal abscess 1:24
oral care for head and neck cancer patients undergoing radiation therapy 6:7
- Carcinoma, metastatic, masquerading as retropharyngeal abscess 1:24
- Cassells, J.S., RADM, MC
care and caring 2:1
changing times 5:1
Dental Corps greetings on 75th anniversary 4:2
futurism and Navy medicine 3:1
graduate medical education 1:1
information flow 6:2
Navy medicine: competitiveness and challenge in the 1990's 3:10
- Casts for lower extremities aboard ship 1:26
- Chaffoo, R.A.K., LCDR, MC, metastatic carcinoma masquerading as retropharyngeal abscess 1:24
- Chambers, T.P., ENS, MC, USNR, a first year student's impression of OIS 1:10
- Chester, W.L., LT, MC, USNR, hidden obstruction of field anesthesia machine 1:16
- Chlamydial urethritis: the most frequent form of nongonococcal urethritis 6:24
- Chobanian, S.J., CDR, MC, USNR, screening for colorectal cancer 1:6
- Cocrane, R.M., LT, MSC, your wartime mission 4:20
- Coffey, H.C., LCDR, MSC, managing the patient experience 3:23
- Cold temperature studies 1:2
- Colitis, ulcerative, a review of 2:6, 3:6
- Colon
colorectal cancer, screening for 1:6
ulcerative colitis, a review of 2:6, 3:6
- Communicable diseases
diseases reportable by a DAR 4:11
- Compatibility of Navy litters 1:13
- Computer Assisted Medical Interactive-video System 6:14
- Cross, orange 2:9, 5:29
- DAR (disease alert report) 4:9
- Dembert, M.L., CDR, MC, the disease alert report 4:9
- Dentistry, Navy
dental health: planning for delivery in the 1990's 3:17
Fleet Marine Force 2:5
oral care for head and neck cancer patients undergoing radiation therapy 6:7
osseointegration training 4:6
plain film imaging of the TMJ 4:23
USS *La Salle's* dental department 4:4
75 years of excellence in the Dental Corps 4:2, 13
- Dermatology
Tzanck smears, plain but practical 4:26
- Disease alert report 4:9
- Disease Vector Ecology and Control Center (DVECC), Alameda 2:2
- Donor, blood
Fellows, J.H., CAPT (Ret.) 5:21
- Dr. Boone's first battles 2:22
- ECLAVEA, E., DT2, maxillofacial prosthetic technician 3:4
- Education (see Training)
- Emblems
Don't shoot at the orange cross! 2:9, 5:29
- Entomology
"bug busting" in the Philippines 6:4
DVECC Alameda 2:2
new tsetse fly repellent tested in Africa 2:10
- Expense and performance reporting system, medical 5:18

NOTE: Figures indicate the issue and page in Volume 78 of *Navy Medicine*. For example, 1:24 shows the article may be found in issue No. 1 (January-February), page 24.

- Eyes
 an eye for Aida 3:4
 ophthalmic microsurgery at sea 2:28
 optic neuritis and Antabuse 5:26
- FELLOWES, J.H., CAPT (Ret.), top
 apheresis donor 5:21
 Field anesthesia machine, hidden obstruction of 1:16
 Fighting fit 6:22
 Film imaging techniques, plain, of the TMJ 4:23
 Fitness 6:22
 Fleet Hospital One 3:25
 Fleet Marine Force dentistry 2:5
 Flight deck disasters
 management of mass casualties in the aircraft carrier environment 2:15
 Flinton, R.J., CAPT, DC, osseointegration training in the Dental Corps 4:6
 Fraker, D., Operation Safe Haven 3:25
- GARRIGUES, N., CAPT, MC, plastic surgery and Navy medicine 3:2
 Gastroenterology
 colorectal cancer, screening for 1:6
 Gay, R.B., LT, medical entomologist 6:4
 Geneva Convention
 Don't shoot at the orange cross! 2:9, 5:29
 law of war course 3:9
 marines are marines are marines 5:16
 Gonorrhea
 nongonococcal urethritis: chlamydial urethritis 6:24
- HALITOSIS: diagnosis, clinical significance, prevention, and treatment 5:22
 Head and neck
 cancer patients undergoing radiation therapy, oral care for 6:7
 metastatic carcinoma masquerading as retropharyngeal abscess 1:24
 Health and Physical Readiness programs fighting fit 6:22
 Health care management
 medical expense and performance reporting system 5:18
 Health care, Navy 3:10, 20, 23, 5:11, 13
 Heggie, A.D., CAPT, MC, USNR, chlamydial urethritis: the most frequent form of nongonococcal urethritis 6:24
 Herman, J.K.
 interview with W.B. Lipes on appendectomy performed aboard ship in 1942 1:20
 letters to the editor 1:29, 5:29
 History
 appendectomy performed aboard ship in 1942 1:20
- Boone, J.T., VADM, MC (deceased) 2:22
 Dental Corps, Navy, 75 years of excellence 4:2, 13
 WWII, the war's most incredible document 6:10
 Ho, B.T., CAPT, MC 2:28, 5:5, 6
 Hospitals
 Bethesda, plateletpheresis 5:20
 fleet 3:25
 smoking policy, guide to 3:20
 Human adaptability to cold, studies on 1:2
- IMAGING of the TMJ, plain film techniques 4:23
 Implantology
 osseointegration training in the Dental Corps 4:6
 In memoriam
 Brown, J.M., oldest Navy nurse dies 6:26
 Insects 2:2, 2:10, 6:4
 Interview
 Lipes, W.B., on appendectomy performed aboard ship in 1942 1:20
- JEFFRIES, J.H. III, COL, USMCR
 marines are marines are marines 5:16
 Don't shoot at the orange cross! 2:9, 5:29
- KASHIMBA, D., NAS Alameda's DVECC takes the "bugs" out 2:2
 Kelly, J.F., AFMC, compatibility of Navy litters 1:13
 Kentner, R.W. 6:10
 King, C., PHC
 an eye for Aida 3:4
 "bug busting" in the Philippines 6:4
 USNS *Mercy* 5:7, 9
 Koch, R.W., RADM, DC, dental health: planning for delivery in the 1990's 3:17
- LAMACCHIA, D.
 beating the sting: operational entomologists protect the troops 2:10
 too cold for comfort: NMRI scientists study human adaptability 1:2
 Law of war
 course 3:9
 Don't shoot at the orange cross! 2:9, 5:29
 marines are marines are marines 5:16
 Letters to the editor 1:29, 5:29
 Lewis, S., CAPT, MC 1:2
 Lipes, W.B. 1:20, 29
 Litters, Navy, compatibility of 1:13
- MANAGEMENT of mass casualties in the aircraft carrier environment 2:15
 Managing the patient experience 3:23
- Marine Corps, U.S.
 Fleet Marine Force dentistry 2:5
 law of war course 3:9
 marines are marines are marines 5:16
 Mass casualties in the aircraft carrier environment, management of 2:15
 Mateczun, A.J., CDR, MC, Antabuse and optic neuritis: a case report 5:26
 Matheson, J.D., CAPT, DC 5:4, 9
 Mathews, J.P., CAPT, the power of perception and the future of Navy medicine 3:20
 Medical care, Navy 3:10, 20, 23, 5:11, 13
 Medical expense and performance reporting system 5:18
 Medical Personnel Unit Augmentation System 4:20
Mercy medley 5:2
 Metastatic carcinoma masquerading as retropharyngeal abscess 1:24
 Microsurgery
 letter to the editor 1:29
 ophthalmic, at sea 2:28
 Microvascular surgery training 5:25
 Military medicine 3:10, 20, 23, 5:11, 13
 MMART (Mobile Medical Augmentation Readiness Team) 4:20
 Mora, W., LCDR, MC 3:3
 Mosquitoes in Philippines 6:4
- NAVAL Medical Research Institute
 scientists study human adaptability to cold 1:2
 Navy medicine 3:10, 20, 23, 5:11, 13
 Neil-Robertson litter 1:13
 Neuritis, optic, and Antabuse 5:26
 Newport, R.I.
 OIS, first year student's impression of 1:10
 NMRI 1:2
 Nongonococcal urethritis chlamydial urethritis 6:24
 Nurse Corps, Navy
 Brown, J.M., oldest Navy nurse dies 6:26
 nurses and research 2:26
- OFFICER Indoctrination School (OIS), Newport, first year student's impression of 1:10
 One merchant ship, one oil tanker, and one successful appendectomy 1:20
 Operation Safe Haven 3:25
 Ophthalmic microsurgery at sea 2:28
 Optic neuritis and Antabuse 5:26
 Oral care for head and neck cancer patients undergoing radiation therapy 6:7
 Orange cross 2:9, 5:29
 Orientation at OIS Newport 1:10
 Orthopedics afloat: the lower extremities 1:26

- Osseointegration training in the Dental Corps 4:6
- Ozment, B.L., CAPT, MSC, compatibility of Navy litters 1:13
- PATIENT management 3:23
- Perkins, R.A., LT, MC, USNR, the disease alert report 4:9
- Personnel, military
- Medical Personnel Unit Augmentation System 4:20
 - your wartime mission 4:20
- Pharynx
- metastatic carcinoma masquerading as retropharyngeal abscess 1:24
- Philippines
- an eye for Aida 3:4
 - "bug busting" in 6:4
 - USNS *Mercy's* humanitarian cruise 5:2
- Physical fitness 6:22
- Plain film imaging of the TMJ 4:23
- Plastic surgery and Navy medicine 3:2
- Plateletpheresis 5:20
- POW's, WWII
- the war's most incredible document 6:10
- Prostheses
- an eye for Aida 3:4
 - osseointegration training in the Dental Corps 4:6
- RACKLEY, C.L., TSGT, USAF, USNS *Mercy* 5:4
- Radiation therapy, oral care for head and neck cancer patients undergoing 6:7
- Rector, D. 1:20
- Rectum
- colorectal cancer, screening for 1:6
- Reed, H.L., LCDR, MC 1:2
- Repellents, insect, testing of 2:10
- Reporting system, medical expense and performance 5:18
- Research and Navy nurses 2:26
- Retropharyngeal abscess, metastatic carcinoma masquerading as 1:24
- Robinson, A.M., CDR, MC, ulcerative colitis: a review 2:6, 3:6
- SAILOR of the Year 2:27
- SAR medevac litter 1:13
- Screening for colorectal cancer 1:6
- Service, J.E., VADM, fighting fit 6:22
- Sexually transmitted disease
- chlamydial urethritis: the most frequent form of nongonococcal urethritis 6:24
- Shaffer, R.G., RADM, DC, the Navy Dental Corps: 75 years of excellence 4:13
- Shearer, D.R., LCDR, MC, ophthalmic microsurgery at sea 2:28
- Ships
- management of mass casualties in the aircraft carrier environment 2:15
 - ophthalmic microsurgery at sea 2:28
 - orthopedics afloat: the lower extremities 1:26
 - USNS *Mercy* 3:4, 5:2
 - USS *Hector* 2:28
 - USS *La Salle* 4:4
 - USS *Seadragon* 1:20
- Sholdt, L., CAPT, MSC 2:10
- Skin
- Tzanck smears, plain but practical 4:26
- Smith, D.A., CDR, MSC, plateletpheresis spoken here 5:20
- Smoking, guide to hospital policy 3:20
- Stewart, S.B., LT, NC, USNR-R, research and Navy nurses: challenging the profession 2:26
- Stokes litter 1:13
- Strub, P.M., M.A., CAMIS: Computer Assisted Medical Interactive-video System 6:14
- Students
- OIS Newport, first year student's impression of 1:10
- Surgery
- microvascular, training in 5:25
 - ophthalmic microsurgery at sea 2:28
- Swartz, S.E., LT, MC, USNR, ulcerative colitis: a review 2:6, 3:6
- TAYLOR, R.B., HM1, Sailor of the Year 2:27
- Teeth (see Dentistry, Navy)
- Temporomandibular joint (TMJ) 4:23
- The power of perception and the future of Navy medicine 3:20
- The war's most incredible document 6:10
- Thomas, H.G., USNS *Mercy* 5:10
- Tit, R.J., LCDR, MSC, Fleet Marine Force dentistry 2:5
- TMJ (temporomandibular joint) 4:23
- Too cold for comfort: NMRI scientists study human adaptability 1:2
- Toth, F., Ph.D., CAMIS: Computer Assisted Medical Interactive-video System 6:14, 18, 19
- Training
- Computer Assisted Medical Interactive-video System 6:14
 - law of war course 3:9
 - management of mass casualties in the aircraft carrier environment 2:15
 - microvascular surgery 5:25
 - OIS Newport 1:10
 - Operation Safe Haven 3:25
 - osseointegration in the Dental Corps 4:6
 - patient evacuation clerks 1:12
- Transfusions
- plateletpheresis 5:20
- Triage
- mass casualties in the aircraft carrier environment 2:15
- Tsetse flies 2:10
- Tumors
- metastatic carcinoma masquerading as retropharyngeal abscess 1:24
 - oral care for head and neck cancer patients undergoing radiation therapy 6:7
 - screening for colorectal cancer 1:6
- Tzanck smears, plain but practical 4:26
- ULCERATIVE colitis: a review 2:6, 3:6
- Ullman, V., the war's most incredible document 6:10
- Undersea Medical Society changes name 3:5
- Urethritis, chlamydial 6:24
- USNS *Mercy* 3:4, 5:2
- USS *Hector* 2:28
- USS *La Salle* 4:4
- USS *Seadragon* 1:20
- VANKEVICH, P.J., LT, DC, USNR, halitosis: diagnosis, clinical significance, prevention, and treatment 5:22
- Van Ness, M.M., LCDR, MC, screening for colorectal cancer 1:6
- Vidmar, D.A., CDR, MC, Tzanck smears: plain but practical 4:26
- WALCZYK, T.D., LT, DC, USS *La Salle's* dental department 4:4
- Wartime mission 4:20
- Weaver, T., LCDR, DC, plain film imaging of the TMJ 4:23
- Wells, J.K., JO1, plastic surgery and Navy medicine 3:2
- Wilson, C.S., LT, MC, USNR, management of mass casualties in the aircraft carrier environment 2:15
- Wolov, R.B., LCDR, MC, orthopedics afloat: the lower extremities 1:26
- World War II
- appendectomy performed aboard USS *Seadragon* 1:20
 - the war's most incredible document 6:10
- X-RAYS
- plain film imaging of the TMJ 4:23
- YACK, R.W., HMCM, military medicine 5:11
- ZIMBLE, J.A., VADM, MC
- assumes duty as Surgeon General and Director of Naval Medicine 4:29
 - a time for new beginnings 5:13
 - Navy dentistry: asset past and future 4:1
 - outreach 6:1

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